

Rule 126
E1

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8. (New) The doctoring device of claim *16*
5, wherein said doctor foil is
made of plastic.

Remarks

Claims 1-4 have been cancelled. Claims 5-8 have been added in this application. Claims 1-4 had been rejected as being indefinite under Section 112. New claims 5-8 have been drafted with a view of correcting all the indefiniteness rejections. Applicant respectfully submits that claims 5-8 conform to the statute.

Claims 1-4 were rejected as being unpatentable over applicants' admission of prior art at page 1 of the specification (AAPA) as necessary with Kivimaa et al., and further in view of Boucher, if necessary further with Turtinen et al. and/or WO 279. Applicant respectfully traverses this rejection.

To begin, applicant argues that there is a structural difference between a doctor blade and a doctor foil as is well known to those skilled in the art. A doctor blade is always arranged to wipe the surface of the roll at an essential angle to the tangent of the roll and it is pressed against the roll. These are well known features of a doctor blade as disclosed in the cited art. There should always be an essential blade pressure against the roll. Boucher presents a double doctor, wherein the doctor blades are at angles of 30 degrees and 45 degrees to the tangent. Though it is said that other angles may be used, a skilled person in the art would never choose angles smaller than 20 degrees due to the way a doctor blade functions. The blade angle itself varies in a range of 25 degrees to 55 degrees. These features are also well seen in the cited references of Kivimaa (U.S. 5,178,731), U.S. 4,789,432, U.S. 4,151,797, and U.S. 2,477,399.

Furthermore as is well known to one skilled in the art a doctor foil (see Kivimaa), on the other hand, is arranged at an angle of two degrees to ten degrees and the foil is not pressed against the roll but it stays in place by suction (negative pressure). Therein a loading device presses the blade frame against the screw, but not the doctor foil

against the roll. There is only a light load from the loading hoses to the foil but essential negative pressure (suction) between the roll and the doctor foil. The doctor foil according to the invention works in a similar way and the loading devices apply only a light press.

Next, as presented in the specification, there have been attempts to use a double doctor in a suction roll. But, as stated in the specification, "In this case, when the speed of the paper machine increases, both the water removal capacity of the doctor in question and the result of the doctoring diminish substantially." The reason for the doctoring diminishing when double doctor blades are used was heretofore unclear. Applicant has found that less and less water is collected when the speed increases resulting in the strong fuming of water and a lot of water escaping arbitrarily to the room of the paper machine, which is very undesirable. This strong fuming is prevented by applicants' invention and water can now be safely collected. It is useless to have two doctor blades when they in combination, especially the first one, create strong fuming. However, when a doctor foil is used in place of the first doctor blade as disclosed by applicant, water does not fume but comes up as big drops and the doctor blade efficiently collects water into a trough. This trough, therefore, is also an essential feature of the invention. The doctor assembly according to the invention really collects water into the trough; this is not obvious but an unexpected result of the invention.

Further, Boucher teaches an angle of 15 degrees between the two doctor blades. This is a poor value and is on the fringe of the claimed range of 15 degrees to 70 degrees. Usually, water is still coming up onto the roll at the point of 15 degrees, thus this is far from the optimum point according to the invention. Thus, if anyone had tried to exchange the first doctor blade in the doctoring device of Boucher for a doctor foil, s/he would not have had successful results. Also, Boucher fails to show a trough for water collected by the second doctor blade, which is essential to the applicants' invention.

Moreover, Turtinen et al. (Fig. 3b, "31", "S") and WO 279 (Fig. 1, "9" and "11") present double doctors having spraying devices (water jets) for better cleaning of contaminants. One skilled in the art would never apply these for removing water from a

suction roller and they cannot be combined with the prior art in the field of suction rolls even though the description of the state of the art in WO 279 mentions suction rolls in a list.

Furthermore, applicant clarifies that the foil effect only refers to the doctor foil, not to the doctor blade. A simple bar shaped doctor blade (at an angle of 20 degrees or more) does not ever create a foil effect no matter how fast the speed of the suction roll. The foil effect exists only when the angle (in this case, the angle of the foil) is very small, between 2 degrees and 10 degrees, and usually then only at the lower end of this range.

Finally, applicant has published in the magazine Pulp & Paper, Volume 3, Issue 1 (2001) on page 25 unexpected results of the invention. The doctoring device according to the invention is sold under the name "CombiDoc" and it results in 36% better water removal than the conventional twin doctor system (like that in Boucher).

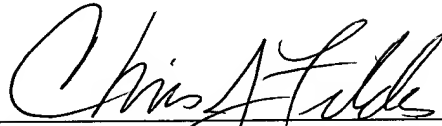
Applicant has rewritten the claims (see new claims 5-8) to further clarify the structure of the doctoring device in accordance with the invention. No new matter has been added. Also, applicant has added the trough structure of the device to the base claim, the trough being essential to the invention and disclosed in the specification and drawings. Applicant has also claimed the relative angular relationships of the doctor and foil as described in the specification and illustrated in the drawings. Applicant submits that for the reasons stated above, the claims are not anticipated by the prior art and are therefore patentable.

This preliminary amendment is felt to be fully responsive to the comments and suggestions of the examiner in the final Office Action and to present the claims in better condition for allowance. Favorable action is requested.

Respectfully submitted,

Tuomo Juvakka et al.

Fildes & Outland, P.C.

A handwritten signature in cursive script, reading "Chris J. Fildes", written over a horizontal line.

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